IN THE CLAIMS

1. (Original) A composition for inhibiting growth of chondrosarcoma cells comprising an effective amount of a peptide of formula I and a pharmaceutically acceptable carrier:

$$Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\ Xaa_7\text{-}Xaa_8\text{-}Xaa_9 \qquad (I)$$

wherein:

Xaa_1, Xaa_4, and Xaa_6 are separately each apolar amino acids;

Xaa_2 is a basic amino acid;

Xaa_3 is a cysteine-like amino acid;

Xaa_5 is a polar or aliphatic amino acid;

Xaa_7 is an acidic amino acid;

Xaa_8 is an aliphatic or polar amino acid; and

Xaa_9 is an aliphatic, apolar or basic amino acid.

2. (Original) A composition for inhibiting growth of chondrosarcoma cells comprising an effective amount of a peptide of formula II and a pharmaceutically acceptable carrier:

$$Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\ Xaa_{13}\text{-}Xaa_{14}\text{-}Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \qquad (II)$$

wherein:

Xaa_{10} is a polar, acidic, basic or apolar amino acid;

Xaa_{11} is a polar or aromatic amino acid;

Xaa_{12} is a polar, basic, aliphatic or apolar amino acid;

Xaa_{13} is an aromatic, aliphatic, polar or acidic amino acid;

Xaa_{14} is an aromatic, apolar or polar amino acid;

Xaa_{15} is an apolar or acidic amino acid;

Xaa_{16} is a basic, a polar or an apolar amino acid;

Xaa_{17} is a basic, a polar, an aliphatic, an apolar or an acidic amino acid;

Xaa_{18} is an apolar or an aliphatic amino acid; and

Xaa_{19} is a basic or an aliphatic amino acid.

3. (Original) A composition for inhibiting growth of chondrosarcoma cells comprising an effective amount of a peptide of formula III and a pharmaceutically acceptable carrier:

$$Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\text{-}Xaa_7\text{-}Xaa_8\text{-}Xaa_9\text{-}Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\text{-}Xaa_{13}\text{-}Xaa_{14}\text{-}Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \quad \text{(III)}$$

wherein

Xaa_1, Xaa_4, and Xaa_6 are separately each apolar amino acids;

Xaa_2 is a basic amino acid;

Xaa_3 is a cysteine-like amino acid;

Xaa_5 is a polar or aliphatic amino acid;

Xaa_7 is an acidic amino acid;

Xaa_8 is an aliphatic or polar amino acid;

Xaa_9 is an aliphatic, apolar or basic amino acid;

Xaa_{10} is a polar, acidic, basic or apolar amino acid;

Xaa_{11} is a polar or aromatic amino acid;

Xaa_{12} is a polar, basic, aliphatic or apolar amino acid;

Xaa_{13} is an aromatic, aliphatic, polar or acidic amino acid;

Xaa_{14} is an aromatic, apolar or polar amino acid;

Xaa_{15} is an apolar or acidic amino acid;

Xaa_{16} is a basic, a polar or an apolar amino acid;

Xaa_{17} is a basic, a polar, an aliphatic, an apolar or an acidic amino acid;

Xaa_{18} is an apolar or an aliphatic amino acid; and

Xaa_{19} is a basic or an aliphatic amino acid.

4. (Original) A composition for inhibiting growth of chondrosarcoma cells comprising an effective amount of a peptide of formula IV (SEQ ID NO:18) and a pharmaceutically acceptable carrier:

$$Xaa_a\text{-}Xaa_b\text{-}Xaa_c\text{-}Xaa_d\text{-}Xaa_e\text{-}Xaa_f\text{-}Xaa_g\text{-}Xaa_h\text{-}Xaa_i\text{-}Xaa_j\text{-}Xaa_k\text{-}Xaa_L\text{-}$$
$$Xaa_m\text{-}Xaa_n\text{-}Xaa_o\text{-}Xaa_p\text{-}\ Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\text{-}$$
$$Xaa_7\text{-}Xaa_8\text{-}Xaa_9\text{-}Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\text{-}Xaa_{13}\text{-}Xaa_{14}\text{-}$$
$$Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \qquad \text{(IV)}$$

Xaa_a is proline;
Xaa_b is glutamine or glutamic acid;
Xaa_c is threonine;
Xaa_d is glycine;
Xaa_e is aspartic acid or glutamic acid;
Xaa_f is leucine;
Xaa_g is aspartic acid;
Xaa_h is glutamine or serine;
Xaa_i is asparagine or alanine;
Xaa_j is threonine;
Xaa_k is isoleucine or leucine;
Xaa_L is glutamic acid or lysine;
Xaa_m is threonine or alanine;
Xaa_n is methionine;
Xaa_o is arginine;
Xaa_p is lysine or threonine;
Xaa_{17} is lysine or aspartic acid;
Xaa_{19} is lysine.

Xaa_1 is proline;
Xaa_2 is arginine;
Xaa_3 is cysteine;
Xaa_4 is glycine;
Xaa_5 is valine or asparagine;
Xaa_6 is proline;
Xaa_7 is aspartic acid;
Xaa_8 is valine or leucine;
Xaa_9 is alanine or glycine;
Xaa_{10} is asparagine or arginine;
Xaa_{11} is tyrosine or phenylalanine;
Xaa_{12} is asparagine or glutamine;
Xaa_{13} is phenylalanine or threonine;
Xaa_{14} is phenylalanine;
Xaa_{15} is proline or glutamic acid;
Xaa_{16} is arginine or glycine;
Xaa_{18} is proline or leucine; and

5. (Original) The composition of any one of claims 1-4, wherein an apolar amino acid is methionine, glycine or proline.

6. (Original) The composition of any one of claims 1-4, wherein a basic amino acid is histidine, lysine, arginine, 2,3-diaminopropionic acid, ornithine, homoarginine, ñ-aminophenylalanine, and 2,4-diaminobutyric acid. The composition of any one of claims 1-4, wherein a cysteine-like amino acid is cysteine, homocysteine, penicillamine, or â-methyl cysteine.

7. (Original) The composition of any one of claims 1-4, wherein an aliphatic amino acid is alanine, valine, leucine, isoleucine, t-butylalanine, t-butylalanine, N–methylisoleucine, norleucine, N-methylvaline, cyclohexylalanine, â-alanine, N-methylglycine, or á-aminoisobutyric acid.

8. (Original) The composition of any one of claims 1-4, wherein an acidic amino acid is aspartic acid or glutamic acid.

9. (Original) The composition of any one of claims 1-4, wherein a polar amino acid is asparagine, glutamine, serine, threonine, tyrosine, citrulline, N-acetyl lysine, methionine sulfoxide, or homoserine, or an apolar amino acid such as methionine, glycine or proline.

10. (Original) The composition of any one of claims 1-4, wherein an aromatic amino acid is phenylalanine, tyrosine, tryptophan, phenylglycine, naphthylalanine, â-2-thienylalanine, 1,2,3,4-tetrahydro-isoquinoline-3-carboxylic acid, 4-chlorophenylalanine, 2-fluorophenylalanine, 3-fluorophenylalanine, 4-fluorophenylalanine, pyridylalanine, or 3-benzothienyl alanine.

11. (Original) The composition of any one of claims 1-4 wherein the peptide inhibits proteinase activity of matrix metalloproteinase-1, matrix metalloproteinase-2, matrix metalloproteinase-3, matrix metalloproteinase-4, matrix metalloproteinase-5, matrix metalloproteinase-6, matrix metalloproteinase-7, matrix metalloproteinase-8, and matrix metalloproteinase-9, matrix metalloproteinase-10, matrix metalloproteinase-11, matrix metalloproteinase-12, or matrix metalloproteinase-13.

12. (Original) The composition of any one of claims 1-4 wherein inhibiting growth of chondrosarcoma inhibits growth of conventional chondrosarcoma, myxoid chondrosarcoma, mesenchymal chondrosarcoma, clear cell chondrosarcoma, or dedifferentiated (spindle cell) chondrosarcoma.

13. (Original) The composition of any one of claims 1-4 wherein inhibiting growth of chondrosarcoma cells inhibits growth of a bone tumor.

14. (Original) The composition of any one of claims 1-4, wherein inhibiting growth of chondrosarcoma cells diminishes a size of a bone tumor.

15. (Original) The composition of claim 12, 13 or 14, wherein the tumor is metastatic, non-metastatic, vascularized, non-vascularized, hard or soft.

16. (Original) The composition of any one of claims 1-4 wherein the peptide comprises SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, or SEQ ID NO:13.

17. (Original) An anti-sarcoma composition that comprises a therapeutically effective amount of peptide that comprises SEQ ID NO:1, SEQ ID NO:2, SEQ ID

NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, or SEQ ID NO:13, and a pharmaceutically acceptable carrier, wherein the peptide is capable of inhibiting growth of chondrosarcoma cells.

18. (Original) A method for decreasing growth of chondrosarcoma cells that comprises contacting a chondrosarcoma cell with an effective amount of a peptide of formula I:

$$Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\ Xaa_7\text{-}Xaa_8\text{-}Xaa_9 \qquad (I)$$

wherein:

Xaa_1, Xaa_4, and Xaa_6 are separately each apolar amino acids;

Xaa_2 is a basic amino acid;

Xaa_3 is a cysteine-like amino acid;

Xaa_5 is a polar or aliphatic amino acid;

Xaa_7 is an acidic amino acid;

Xaa_8 is an aliphatic or polar amino acid; and

Xaa_9 is an aliphatic, apolar or basic amino acid.

19. (Original) A method for decreasing growth of chondrosarcoma cells that comprises contacting a chondrosarcoma cell with an effective amount of a peptide of formula II:

$$Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\ Xaa_{13}\text{-}Xaa_{14}\text{-}Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \qquad (II)$$

wherein:

Xaa_{10} is a polar, acidic, basic or apolar amino acid;

Xaa_{11} is a polar or aromatic amino acid;

Xaa_{12} is a polar, basic, aliphatic or apolar amino acid;

Xaa_{13} is an aromatic, aliphatic, polar or acidic amino acid;

Xaa_{14} is an aromatic, apolar or polar amino acid;

Xaa_{15} is an apolar or acidic amino acid;

Xaa_{16} is a basic, a polar or an apolar amino acid;

Xaa_{17} is a basic, a polar, an aliphatic, an apolar or an acidic amino acid;

Xaa_{18} is an apolar or an aliphatic amino acid; and

Xaa_{19} is a basic or an aliphatic amino acid.

20. (Original) A method for decreasing growth of chondrosarcoma cells that comprises contacting a chondrosarcoma cell with an effective amount of a peptide of formula III:

$$Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\text{-}Xaa_7\text{-}Xaa_8\text{-}Xaa_9\text{-}Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\text{-}Xaa_{13}\text{-}Xaa_{14}\text{-}Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \quad \text{(III)}$$

wherein:

Xaa_1, Xaa_4, and Xaa_6 are separately each apolar amino acids;

Xaa_2 is a basic amino acid;

Xaa_3 is a cysteine-like amino acid;

Xaa_5 is a polar or aliphatic amino acid;

Xaa_7 is an acidic amino acid;

Xaa_8 is an aliphatic or polar amino acid;

Xaa_9 is an aliphatic, apolar or basic amino acid;

Xaa_{10} is a polar, acidic, basic or apolar amino acid;

Xaa_{11} is a polar or aromatic amino acid;

Xaa_{12} is a polar, basic, aliphatic or apolar amino acid;

Xaa_{13} is an aromatic, aliphatic, polar or acidic amino acid;

Xaa_{14} is an aromatic, apolar or polar amino acid;

Xaa_{15} is an apolar or acidic amino acid;

Xaa_{16} is a basic, a polar or an apolar amino acid;

Xaa_{17} is a basic, a polar, an aliphatic, an apolar or an acidic amino acid;

Xaa_{18} is an apolar or an aliphatic amino acid; and

Xaa_{19} is a basic or an aliphatic amino acid.

21. (Original) A method for decreasing growth of chondrosarcoma cells that comprises contacting a chondrosarcoma cell with an effective amount of a peptide of formula IV (SEQ ID NO:18):

$$Xaa_a\text{-}Xaa_b\text{-}Xaa_c\text{-}Xaa_d\text{-}Xaa_e\text{-}Xaa_f\text{-}Xaa_g\text{-}Xaa_h\text{-}Xaa_i\text{-}Xaa_j\text{-}Xaa_k\text{-}Xaa_L\text{-}$$
$$Xaa_m\text{-}Xaa_n\text{-}Xaa_o\text{-}Xaa_p\text{-}\ Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}Xaa_6\text{-}$$
$$Xaa_7\text{-}Xaa_8\text{-}Xaa_9\text{-}Xaa_{10}\text{-}Xaa_{11}\text{-}Xaa_{12}\text{-}Xaa_{13}\text{-}Xaa_{14}\text{-}$$
$$Xaa_{15}\text{-}Xaa_{16}\text{-}Xaa_{17}\text{-}Xaa_{18}\text{-}Xaa_{19} \qquad \text{(IV)}$$

wherein:

Xaa_a is proline;

Xaa_b is glutamine or glutamic acid;

Xaa_c is threonine;

Xaa_d is glycine;

Xaa_e is aspartic acid or glutamic acid;

Xaa_f is leucine;

Xaa_g is aspartic acid;

Xaa_h is glutamine or serine;

Xaa_i is asparagine or alanine;

Xaa_j is threonine;

Xaa_k is isoleucine or leucine;

Xaa_L is glutamic acid or lysine;

Xaa_m is threonine or alanine;

Xaa_n is methionine;

Xaa_1 is proline;

Xaa_2 is arginine;

Xaa_3 is cysteine;

Xaa_4 is glycine;

Xaa_5 is valine or asparagine;

Xaa_6 is proline;

Xaa_7 is aspartic acid;

Xaa_8 is valine or leucine;

Xaa_9 is alanine or glycine;

Xaa_{10} is asparagine or arginine;

Xaa_{11} is tyrosine or phenylalanine;

Xaa_{12} is asparagine or glutamine;

Xaa_{13} is phenylalanine or threonine;

Xaa_{14} is phenylalanine;

Xaa_o is arginine;
Xaa_p is lysine or threonine;
Xaa_{15} is proline or glutamic acid;
Xaa_{16} is arginine or glycine;
Xaa_{17} is lysine or aspartic acid;
Xaa_{18} is proline or leucine; and
Xaa_{19} is lysine.

22. (Original) The method of any one of claims 18-21, wherein the peptide comprises SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, or SEQ ID NO:13.

23. (Original) The method of any one of claims 18-21, wherein the peptide comprises SEQ ID NO:11.

24. (Original) The method of any one of claims 18-21, wherein an apolar amino acid is methionine, glycine or proline.

25. (Original) The method of any one of claims 18-21, wherein a basic amino acid is histidine, lysine, arginine, 2,3-diaminopropionic acid, ornithine, homoarginine, ñ-aminophenylalanine, and 2,4-diaminobutyric acid.

26. (Original) The method of any one of claims 18-21, wherein a cysteine-like amino acid is cysteine, homocysteine, penicillamine, or â-methyl cysteine.

27. (Original) The method of any one of claims 18-21, wherein an aliphatic amino acid is alanine, valine, leucine, isoleucine, t-butylalanine, t-butylalanine, N–methylisoleucine, norleucine, N-methylvaline, cyclohexylalanine, â-alanine, N-methylglycine, or á-aminoisobutyric acid.

28. (Original) The method of any one of claims 18-21, wherein an acidic amino acid is aspartic acid or glutamic acid.

29. (Original) The method of any one of claims 18-21, wherein a polar amino acid is asparagine, glutamine, serine, threonine, tyrosine, citrulline, N-acetyl lysine, methionine sulfoxide, or homoserine, or an apolar amino acid such as methionine, glycine or proline.

30. (Original) The method of any one of claims 18-21, wherein an aromatic amino acid is phenylalanine, tyrosine, tryptophan, phenylglycine, naphthylalanine, â-2-thienylalanine, 1,2,3,4-tetrahydro-isoquinoline-3-carboxylic acid, 4-chlorophenylalanine, 2-fluorophenylalanine, 3-fluorophenylalanine, 4-fluorophenylalanine, pyridylalanine, or 3-benzothienyl alanine.

31. (Original) The method of any one of claims 18-21, that further comprises locally administering the peptide to a tumor in a mammal.

32. (Original) The method of claim 31, wherein the tumor is metastatic, non-metastatic, vascularized, non-vascularized, hard or soft.

33. (Original) The method of any one of claims 18-21, wherein decreasing growth of chondrosarcoma cells decreases growth of conventional chondrosarcoma, myxoid chondrosarcoma, mesenchymal chondrosarcoma, clear cell chondrosarcoma, or dedifferentiated (spindle cell) chondrosarcoma.